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**FOREIGN PATENT**

**GB 2 030 670 A**

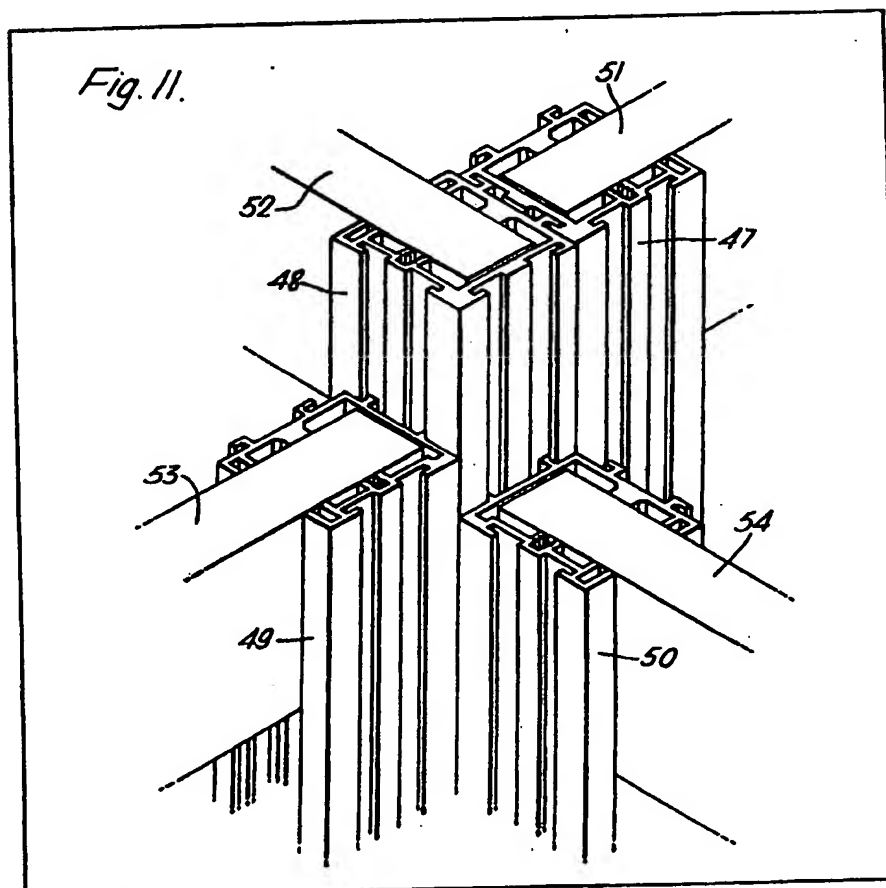
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## (54) Framework members

(57) Framework members 47 to 50 which may readily be joined together to form a framework to make furniture, storage racks and the like, comprise U cross-sectioned channel members having external complementary longitudinal grooves

and ribs which are slidably engageable and have internal grooved longitudinal recesses to receive bolts for fixing panels 51 to 54 or the like to the framework members. A cover strip may be used to form a boxsection. Corner connectors, Figs. 13 to 17 (not shown), enable members to be joined at right angles.



GB 2 030 670 A

Fig. 1.

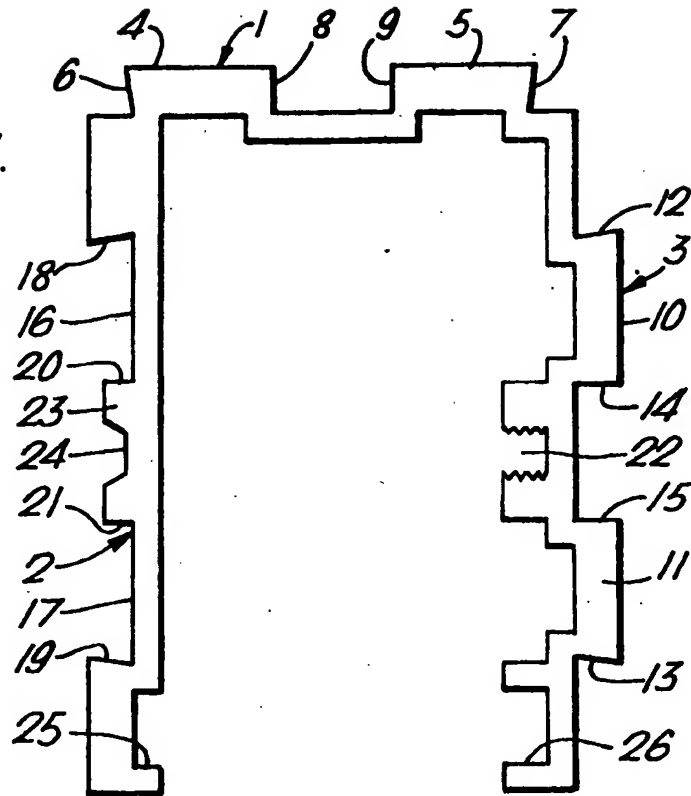
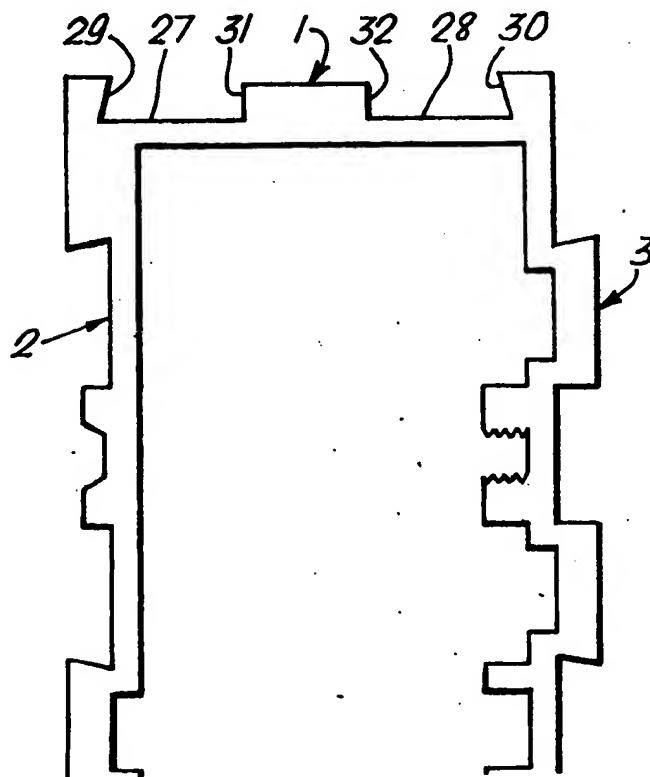
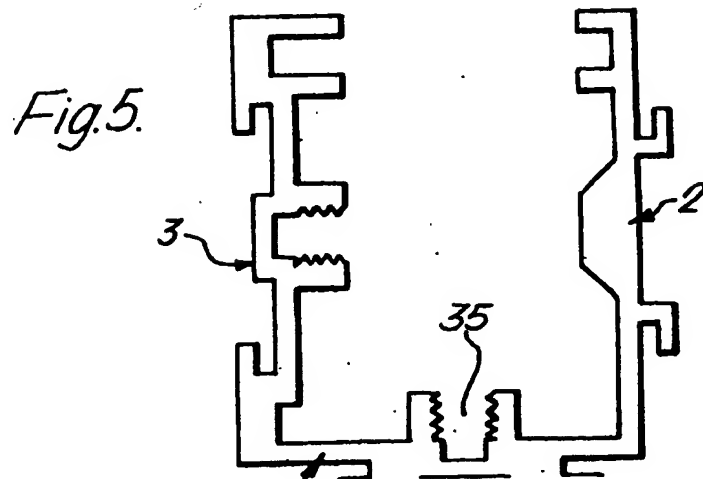
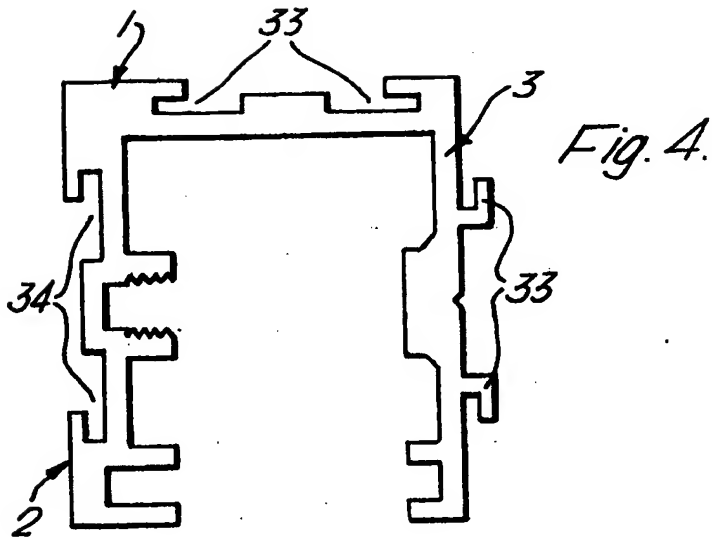
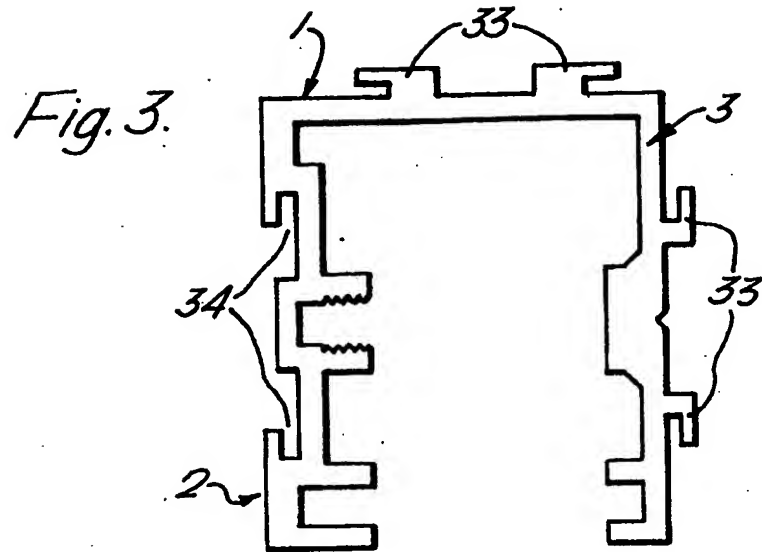


Fig. 2.





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Fig. 6.

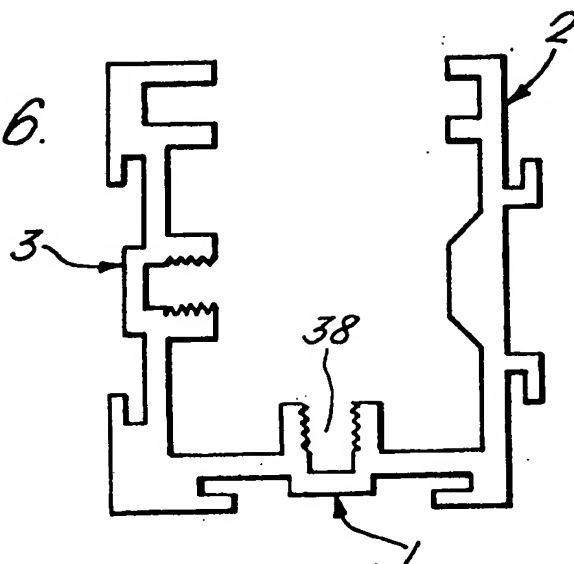


Fig. 7.

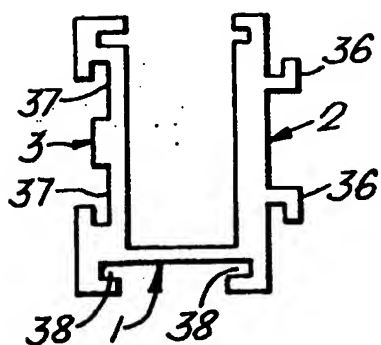


Fig. 8.

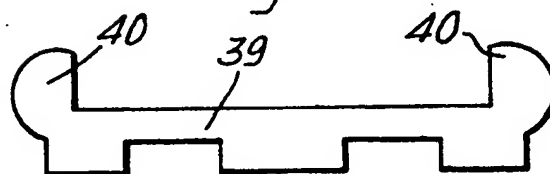
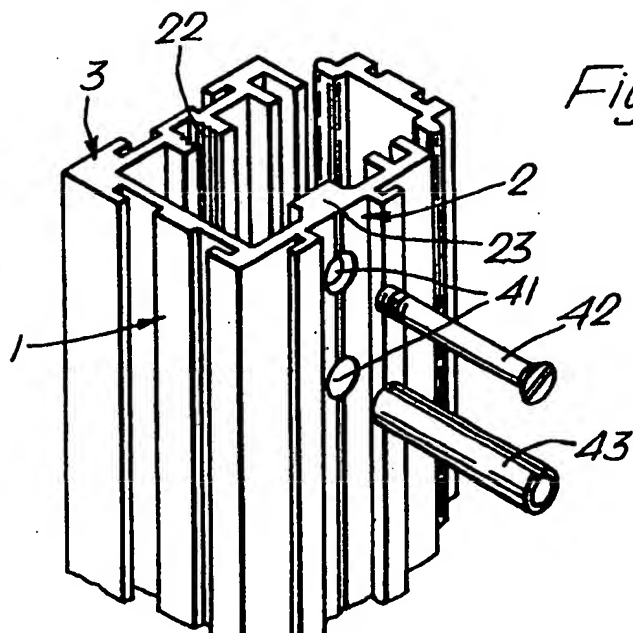


Fig. 9.



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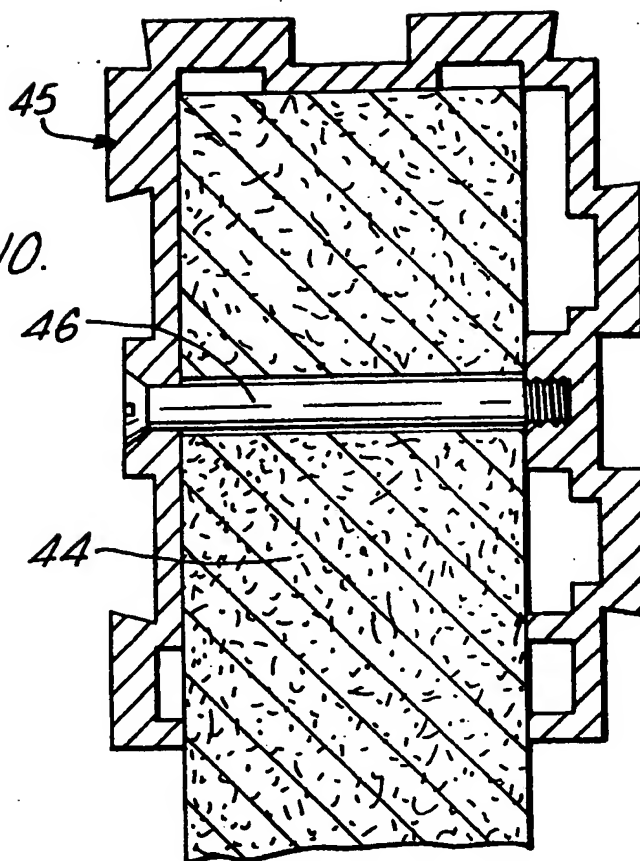
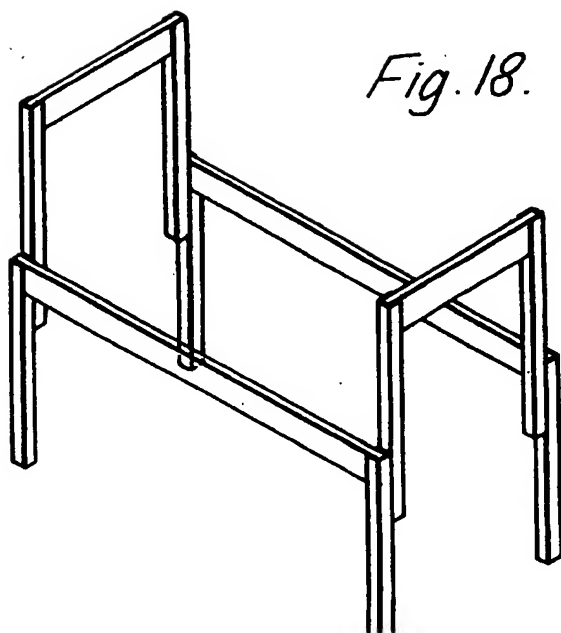
*Fig. 10.**Fig. 18.*

Fig. 11.

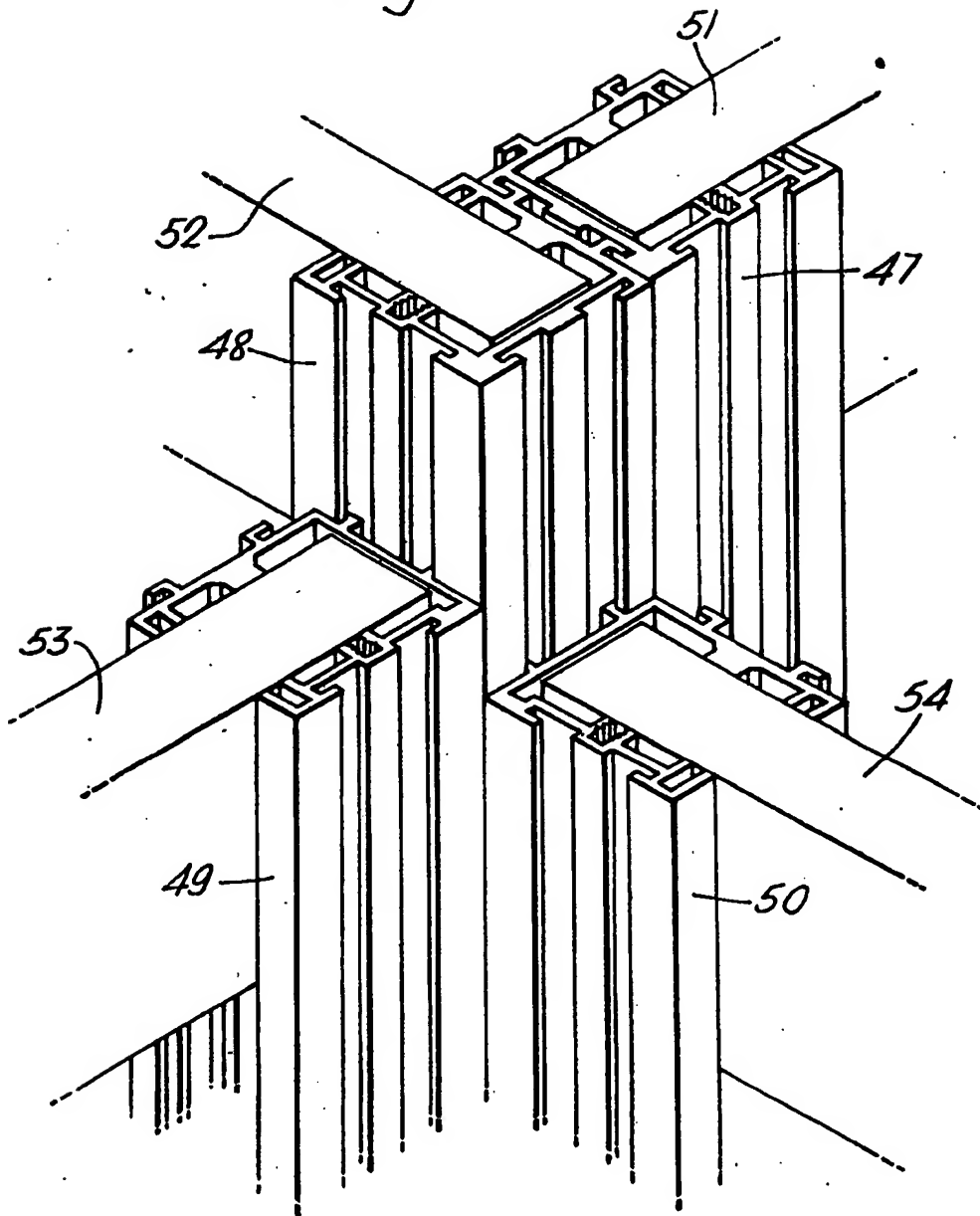
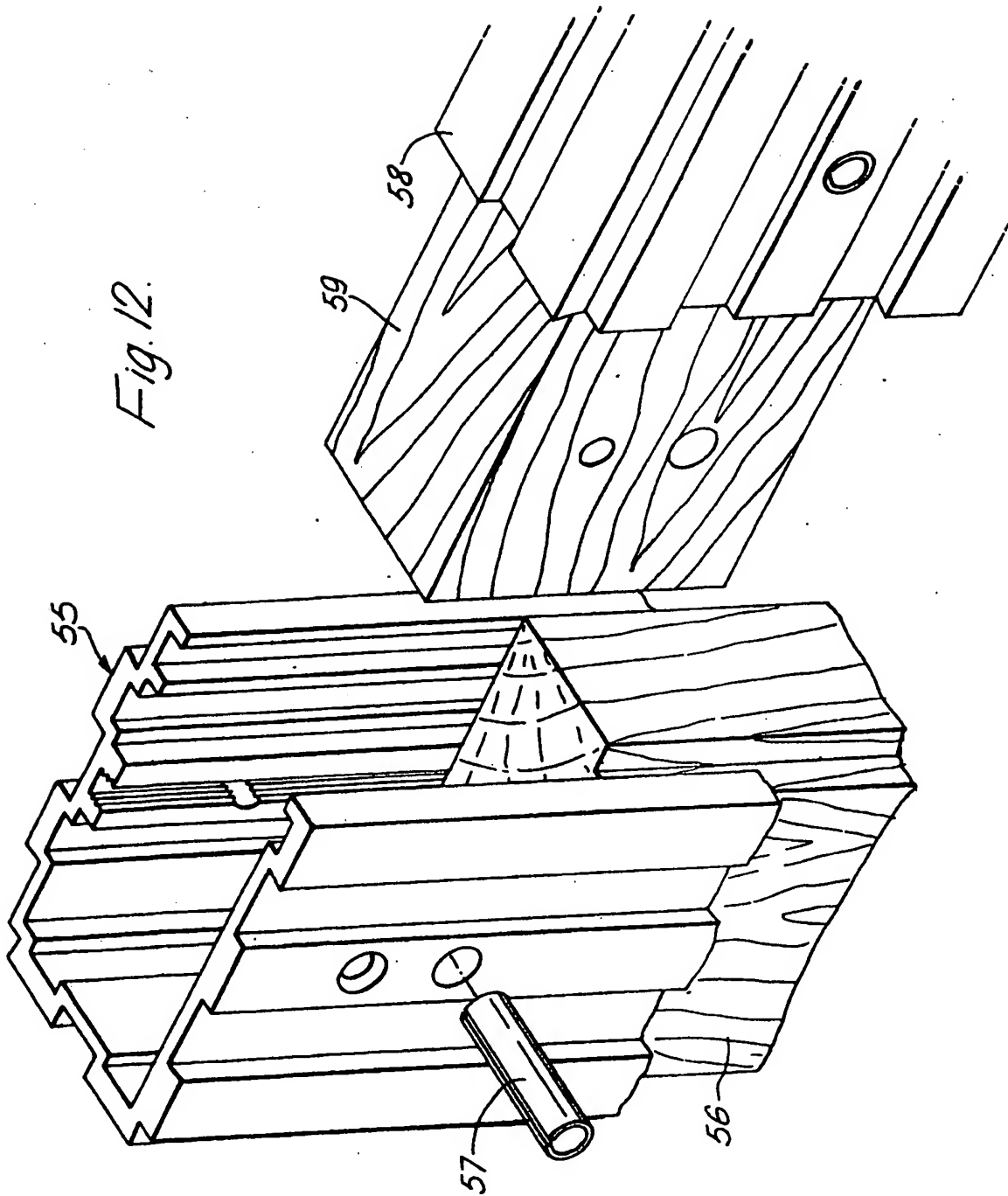
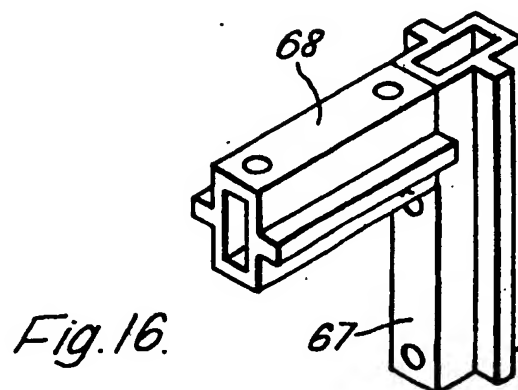
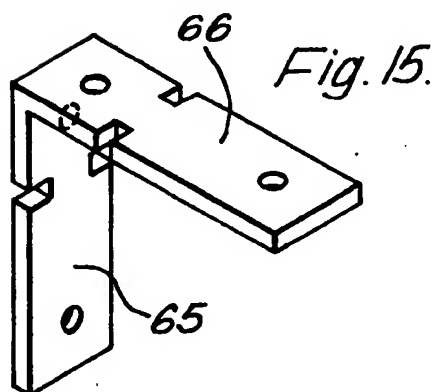
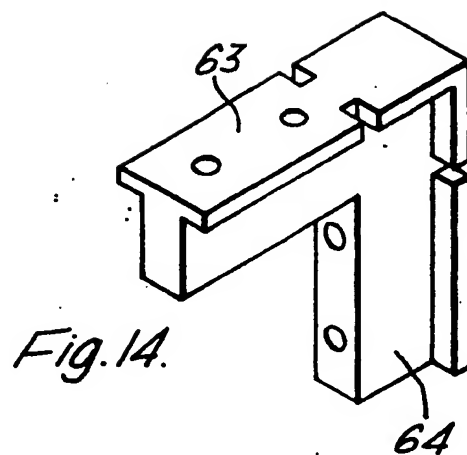
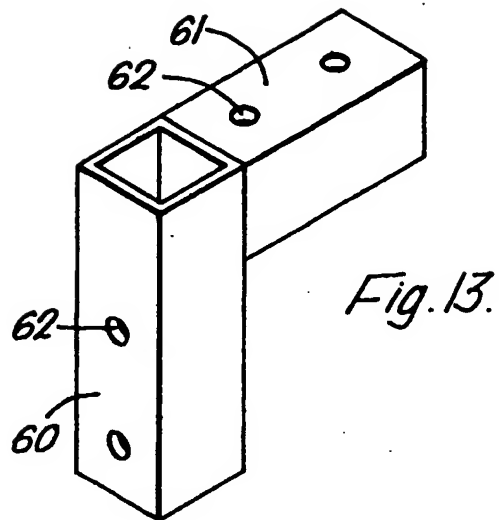
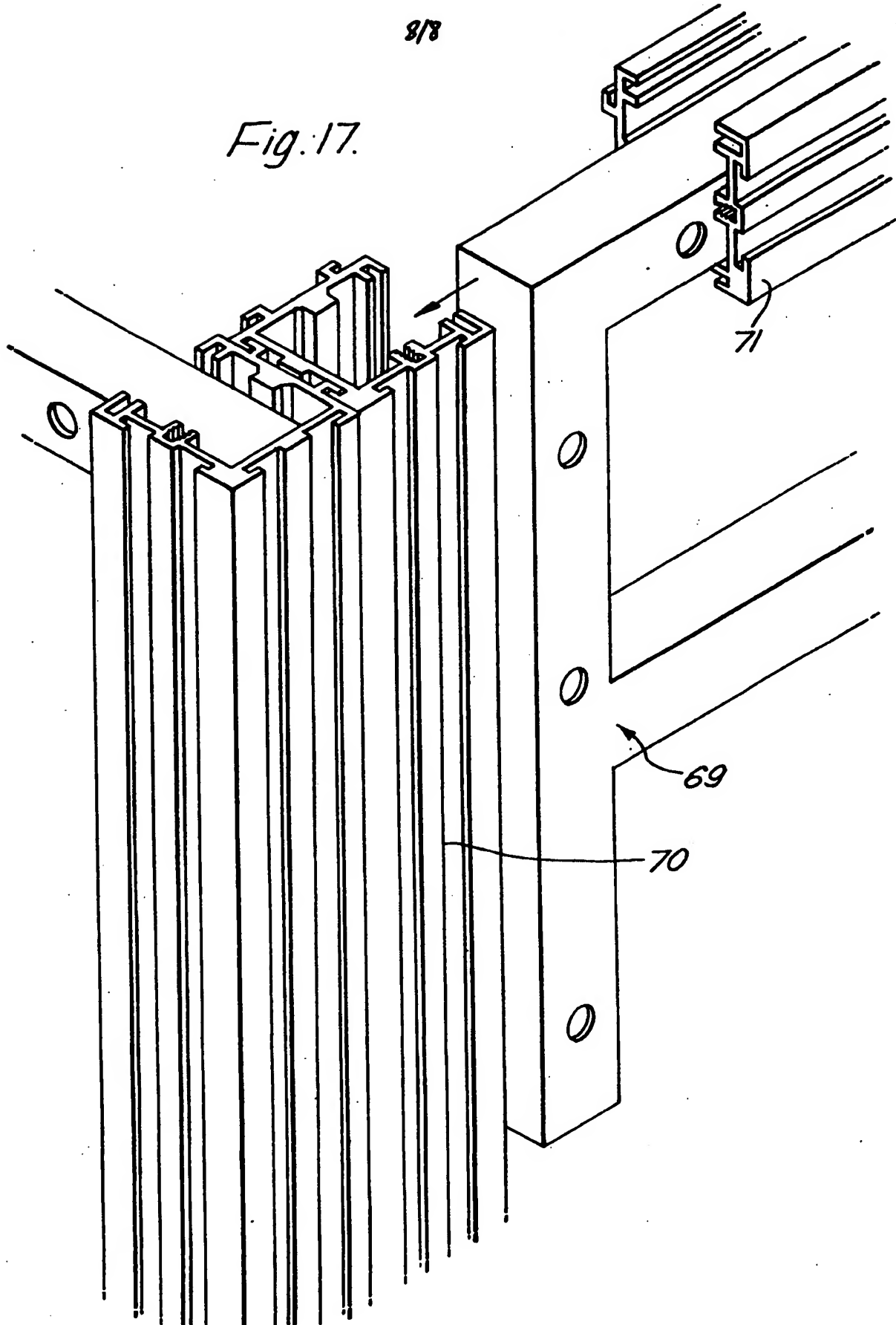




Fig. 12.





*Fig. 17.*

## SPECIFICATION

Improved framework members.

## TECHNICAL FIELD

- 5 This invention relates to improved framework members of the type in which two or more members may readily be joined together to form a framework which may then be readily disassembled for storage purposes.

## PRIOR ART

- 10 Frameworks which are simply erected and readily disassembled can be used for a variety of purposes and many such framework systems are well known. All such systems strive for simplicity in construction and manner of fixing the framework members together, while at the same time providing a versatile system by which many different frameworks may be assembled. Such frameworks may be used to form the basis in the construction of office furniture, for example, desks, cabinets and chairs and also domestic furniture and further may be used simply as frameworks for the storage of goods.

- 20 It is an object of this invention to provide a framework system which reconciles the two qualities mentioned above, namely, simplicity in construction and versatility and at the same time does this in an economical member.

## STATEMENT OF INVENTION

- 30 According to the present invention there is provided an elongate framework member, comprising a base wall and two spaced side walls integrally formed so that the member is substantially U-shaped in cross-section, the member having a longitudinally extending connection channel or connection rib on the outer surface of one of the said walls.

- 35 The invention also includes an elongate framework member comprising a base wall and two spaced side walls integrally formed so that the member is substantially U-shaped in cross-section, the member having on the outer surface of one wall a longitudinally extending channel and on the outer surface of the same or a different wall a longitudinally extending rib shaped so as to interlock with a said longitudinally extending channel of a similar elongate framework member to form a framework.

- 45 The invention also includes a framework formed by a plurality of framework members as aforesaid.

## DETAILED DESCRIPTION

This invention will now be described, by way of example only, with reference to the accompanying illustrative drawings in which:—

- 55 FIGURE 1 is an end view of a first framework member constructed in accordance with the invention;

FIGURE 2 is an end view of a second framework member constructed in accordance with the

member constructed in accordance with the invention;

- 65 FIGURE 4 is an end view of a fourth framework member constructed in accordance with the invention;

- FIGURE 5 is an end view of a fifth framework member constructed in accordance with the invention;

- 70 FIGURE 6 is an end view of a sixth framework member constructed in accordance with the invention;

- FIGURE 7 is an end view of a seventh framework member constructed in accordance with the invention;

- 75 FIGURE 8 is an end view of a closure strip for use with a framework member;

- FIGURE 9 is a perspective view of part of a framework member and part of a closure strip showing a method of attachment;

- 80 FIGURE 10 is an end view of a framework member in accordance with the invention showing a method of fixing a panel thereto;

- FIGURE 11 is a perspective view of several framework members and panels showing a framework established thereby;

- 85 FIGURE 12 is a perspective view of a framework member in accordance with the invention showing a further method of attachment of another framework member to form a framework;

- FIGURES 13, 14, 15 and 16 are perspective views of joints for attaching together framework members in accordance with the invention;

- 95 FIGURE 17 is a perspective view showing several framework members joined to form a framework; and

- FIGURE 18 is a perspective view showing the formation of a framework by using framework members in accordance with the invention.

- 100 Referring first to Figure 1, there is illustrated an end view of a framework member which as will be seen, is basically U-shaped with a base wall 1 and two spaced side walls 2 and 3. This member may be extruded in aluminium or any other convenient material. In this embodiment, the base wall 1 has, on the outside surface thereof, two longitudinally extending ribs 4 and 5 each of which has an undercut face 6 and 7 respectively and a face 8 and 9 respectively which is normal to the outer surface of the base wall 1.

- 105 The side wall 3 is similarly provided with two longitudinally extending ribs 10 and 11 which have undercut faces 12 and 13 respectively and faces 14 and 15 respectively which are normal to the surface of the side wall 3.

- 110 The side wall 2 is provided with two longitudinally extending grooves 16 and 17 each having a face 18 and 19 respectively which are undercut and each having faces 20 and 21 respectively which are normal to the surface of side wall 2.

- 115 The ribs described above are complementary to the channels whereby an interlocking sliding relationship may be obtained between the ribs of

another framework member.

Extending longitudinally along the inner surface of side wall 3 is a longitudinal groove 22 the opposite walls of which are provided with longitudinally extending serrations for the reception of the threads of a bolt. Immediately opposite the longitudinal groove is a longitudinally enlarged portion 23 having a weakening channel 24 the purpose of which will be described later.

Adjacent the mouth of the framework member are two further longitudinally extending channels 25 and 26 so as to enable other members to be fixed thereto as will be explained later.

The embodiment of Figure 1 may be referred to as a male framework member whereas the embodiment of Figure 2 may be referred to as a corresponding female framework member. It will be seen from the figures that the two framework members are similar apart from the base wall of Figure 1 embodiment having ribs whereas the base wall of Figure 2 is provided with two longitudinally extending recesses 27 and 28 having undercut faces 29 and 30 respectively and faces 31 and 32 respectively which are normal to the surface of base wall 1.

Figures 3 and 4 may conveniently be referred to as male and female members respectively of a further embodiment of framework member in accordance with the invention. These members differ from the members of Figures 1 and 2 primarily in the shape of the ribs and recesses. As will be seen from Figures 3 and 4, the ribs, collectively referenced 33, are substantially L-shaped in cross-section. The recesses, collectively referenced 34, are also substantially L-shaped in cross-section so as to receive the ribs of similar framework members.

Figures 5 and 6 may conveniently be referred to as male and female members respectively of a still further embodiment. As will be seen, this embodiment differs from that of Figures 3 and 4 in that a second longitudinal grooved recess 35 is located on the base wall 1 of the member.

The embodiment of Figure 7 is different from those described above in the interior surface of the member is plain. As will be seen the member includes a base wall 1 and side walls 2 and 3 as previously, the side wall 2 having longitudinally extending ribs 36 and the side wall 3 having longitudinally extending grooves 37. The base wall 1 has two longitudinally extending re-entrant portions 38 which receive the tips of ribs 36 of a similar framework member.

Figure 8 illustrates a closure member so that, when a framework has been established, any remaining open sided portions of the framework members may be closed by using a length of this closure member thus completing a box section for the member. This closure member may similarly be extruded in aluminium or any other convenient material, for example, plastics and includes a base 39 having two longitudinal beads 40 to enable the member to be snapped into the recesses 25 and 26 (see Figure 1) of the framework member.

closure member slightly separated and also indicates the manner in which the longitudinally grooved recess is used. To fix a panel or other member within the U-shaped framework member a hole or a series of holes 41 are formed in the part 23 and then a screw-threaded bolt 42 or a tension pin 43 is passed through the hole, through the panel or other member and located in the grooved recess 22 in the side wall 3. In the case of bolt 42, this may be screwed into the grooved recess 22 whereas, in the case of the tension pin, this may be simply located in a part circular drilling formed in the recess 22.

Figure 10 shows the attachment of a panel, for example, a chip-board laminate 44 to a typical framework member 45 by the use of one or more bolts 46.

Figure 11 is self-explanatory and shows four framework members 47, 48, 49 and 50 the members 47, 49 and 50 being slidably attached to the member 48. Each such member carries a panel 51, 52, 53 and 54 respectively.

Figure 12 shows typically the formation of a joint using a framework member 55 having an infill 56 attached thereto by a tension pin 57 and a second framework member 58 with an infill member 59.

The invention visualises the production of many different formations of frameworks and to enable this to be achieved Figures 13, 14 15 and 16 shows joints which may be utilised with the framework members to form frameworks. Figure 13 illustrates a typical right-angled joint having one arm 60 fixed to a second arm 61, the arms 60 and 61 being dimensioned to be received within respective framework members and bolts or tension pins passing through the holes 62.

Figure 14 shows a similar joint in which the arms 63 and 64 are T-shaped in cross-section. As will be appreciated, these arms are of T-shaped for increased strength and also so that they may be receiving within the longitudinal recesses 25 and 26 of the framework members.

Figure 15 shows a further joint having arms 65 and 66 and, here again, these may be received within the recess 25 and 26 of the framework members.

Figure 16 shows the arms 67 and 68 of box section with flanges to be received in the recesses 25 and 26 of the framework members.

Not only may an angle joint be provided as illustrated in Figures 13 and 16 but, as illustrated in Figure 17, an F-section joint 69 may be provided. This will enable a ridged connection to be established between, for example, an upright framework member 70 and two horizontal framework members, only one of which, 71, is shown. Such a structure would be suitable for the formation of drawers in, for example, a desk. Of course, more than two horizontal members may be provided in a joint of this nature.

Figure 18 shows a framework built up of framework members, joints and panels in accordance with the invention. This is a further

be fabricated.

#### CLAIMS

1. An elongate framework member, comprising a base wall and two spaced side walls integrally formed so that the member is substantially U-shaped in cross-section, the member having a longitudinally extending connection channel or connection rib on the outer surface of one of the said walls.

2. An elongate framework member, comprising a base wall and two spaced side walls integrally formed so that the member is substantially U-shaped in cross-section, the member having on the outer surface of one wall a longitudinally extending channel and on the outer surface of a different wall a longitudinally extending rib shaped so as to interlock with a said longitudinally extending channel of a similar elongate framework member to form a framework.

3. A framework member as claimed in Claim 2, in which the longitudinally extending rib is on one side wall and the longitudinally extending channel is on the other side wall.

4. A framework member as claimed in Claim 3, in which the base wall has a longitudinally extending rib or a longitudinally extending channel.

5. A framework member as claimed in any one of the preceding claims, including securing means for securing a component within the framework member.

6. A framework member as claimed in Claim 5, in which the securing means comprises a bolt which is passed through the component and engages a longitudinally extending and longitudinally grooved recess in the interior of the framework member.

7. A framework member as claimed in Claim 6, in which the bolt passes through a hole in one side wall, through a portion of the component and engages the longitudinally extending grooved recess in the other side wall.

8. A framework member as claimed in any one of the preceding claims, in which the or each longitudinally extending channel is or are undercut.

9. A framework member as claimed in Claim 8, 95

in which only one wall of the or each channel is undercut.

10. A framework member as claimed in any one of the preceding claims, in which two or more channels are provided on one wall of the framework member.

11. A framework member as claimed in any one of the preceding claims, in which two or more ribs are provided on one wall of the framework member.

12. A framework member as claimed in any one of the preceding claims, in which two longitudinally extending and longitudinally grooved recesses are provided, one recess being on the interior of the base wall and the other recess being on the interior of one of the side walls.

13. A framework member as claimed in any one of the preceding claims, including a closure strip therefore to form a box section.

14. A framework member substantially as herein described with reference to any one of the examples in the accompanying illustrative drawings.

15. A framework, comprising a plurality of framework members as claimed in any one of the preceding claims, at least two of which members are secured together by engagement of a longitudinal rib of one member with a longitudinal channel of another member.

16. A framework, including a framework member as claimed in any one of Claims 1 to 14, in which a joint having two sections disposed at an angle one to the other has at least a portion of one of the sections located within the framework member.

17. A framework as claimed in Claim 16, in which each portion of the joint is provided with at least one flange for retaining the joint within the framework member.

18. A framework substantially as herein described with reference to any one of the examples in the accompanying illustrative drawings.

19. An article of furniture having framework constructed in accordance with any one of Claims 15 to 18.